

REGIONAL BIODIESEL HIGHLIGHTS

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Energy, Parks, and Clean Cities
14th Montana Ethanol Conference
Helena, MT, June 14, 2004



POINTS TO COVER:

- Why and where of biodiesel, markets
- Concerns
- Cold climate and emissions
- Availability
- Challenges and status



WHY BIODIESEL FUEL

Fuel supply disruptions

Consumes higher than per capita average

Petroleum based vulnerability

Mobile source air quality concerns

Improves lubricity and cetane

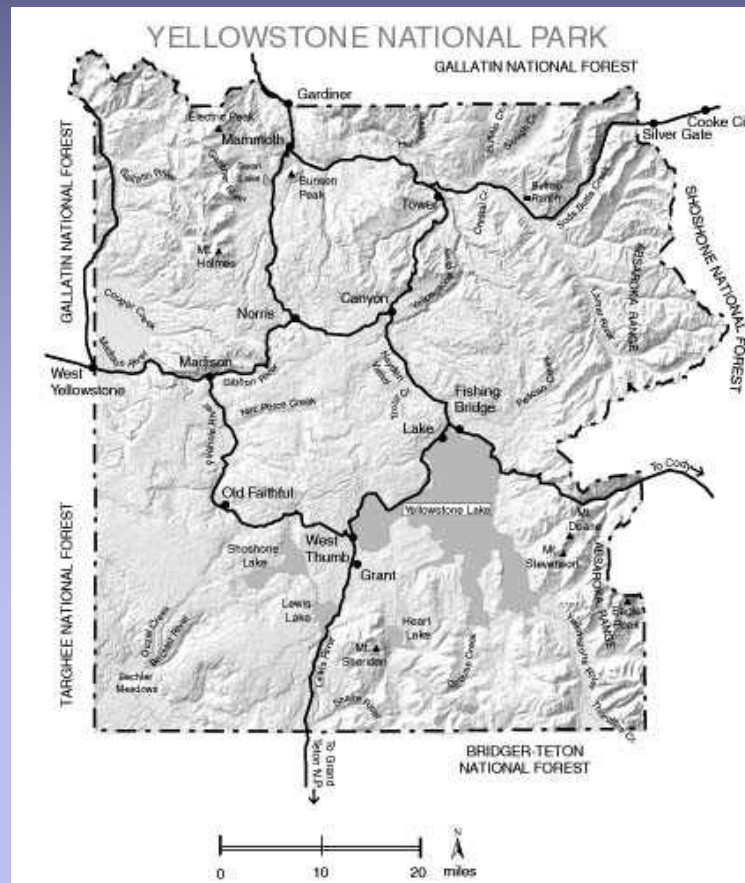
Top 3 oilseed producing regions in US

WHY BIODIESEL

- Safe
- Biodegradable, renewable, indigenous
- Low odor, no smoke
- Blind to the driver
- Cleaner burning



1994 DNRC/DEQ with DOE and YNP started a pilot demonstration of 100 % canola ethyl ester



To Document:

- Cold Climate-high elevation operation
- Impacts
- Costs
- Wildlife Concerns



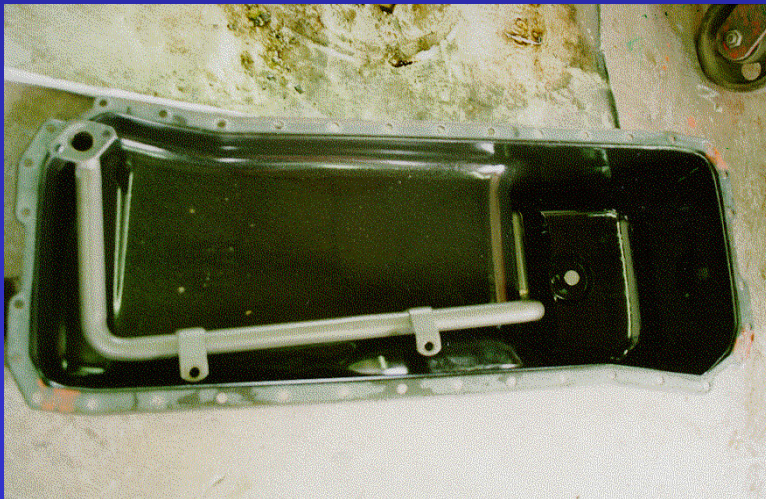
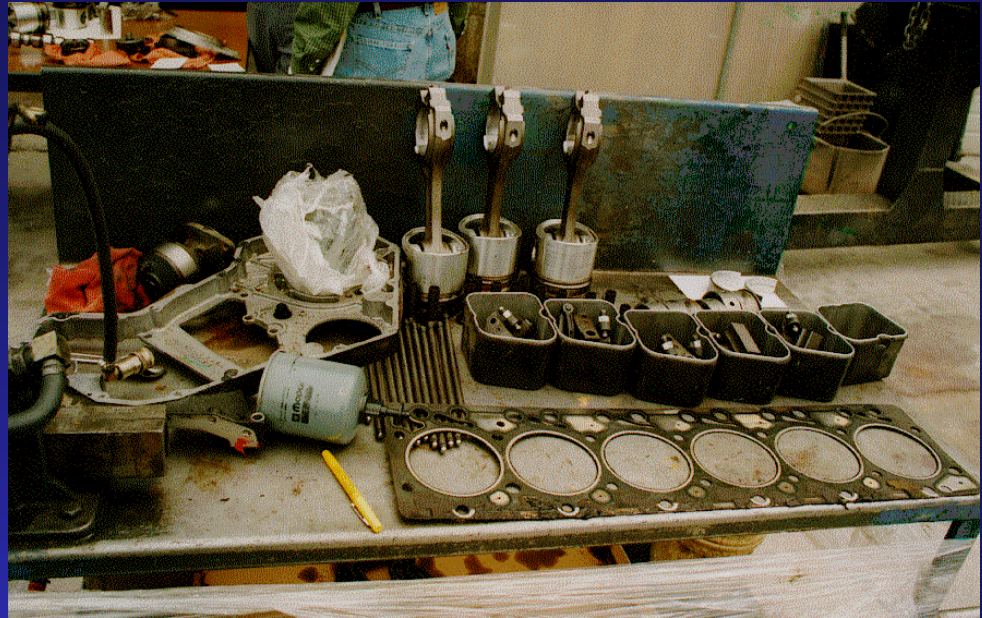
Regionally speaking, biodiesel was found to be no more attractive to bears than regular diesel.

This may not hold for used fry oil feed stock

Biodiesel BENEFITS

**LOW INITIAL
COST**

**SIMILAR POWER,
VEHICLE RANGE**



**HIGH BIODEGRADABILITY,
EASIER SPILL CLEAN-UP
FOR B-100**

**REDUCED CO, ODOR,
SOOT**

BIODIESEL EMISSIONS

Fuel	CO, %	HC, %
Diesel, 2D	100	100
Biodiesel, B-100	-35 to -45	-62 to -74
Biodiesel, B-20	-16 to -28	-17 to -23

FTP chassis dynamometer at Los Angeles C-MTX and HD transient emissions at Southwest Research Institute



BIODIESEL EMISSIONS

Fuel	PM, %	NOx, %	Smoke
Diesel, 2D	100	100	100
Biodiesel, B-100	-50 to 11	-5 to 9	-54 to -78
Biodiesel, B-20	-10 to 5	-4 to -8	-47

FTP chassis dynamometer at Los Angeles C-MTX and HD transient emissions at Southwest Research Institute

EXPANSION OF BIODIESEL PROGRAM



500 gal B100



1,000 gal B-20



15,000 gal B100

Cold Climate Operation is manageable

BIODIESEL IN YELLOWSTONE



BIODIESEL IN YNP RIDESHARE



NEW "Yellow Bus"



MARKET DEVELOPMENT

Challenges: cost and availability

- Federal regulations to use non-petroleum fuel
- Green Energy Parks Program
- Yellowstone-Teton Clean Cities Coalition
(~1.3 million to 2.2 million gal/yr use)
- Possible lower cost feedstocks (mustard, UFO, and ethanol from cellulose)
- Warranties

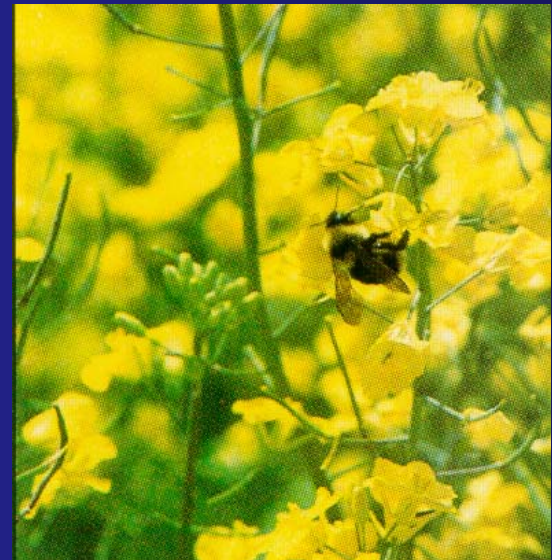


BIODIESEL USE

**Regulated markets to reduce emissions
(Boise ID, Missoula MT, Puget Sound WA)**

**Executive Orders (federal government,
(Malstrom AFB, BLM in Lewistown))**

**Mission-oriented markets: Glacier and
Yellowstone National Parks**



BIODIESEL FUEL USERS

Yellowstone and Glacier National Parks

Charlie Russell National Wildlife Refuge

Maelstrom Air Force Base

Mountain Line, Missoula

City of Bozeman

EconoMart West Yellowstone--priced as diesel

University of Montana



BIODIESEL CONTACTS

- ALLEN OIL COMPANY, HELENA
- CITY SERVICE, KALISPEL
- STORY DISTRIBUTING, BOZEMAN
- MONTANA BIODIESEL, MISSOULA



**Biodiesel for State Highway and
Transportation Departments,**

Boise, ID Sept 9 and 10, 2004

www.uidaho.edu/bae/biodiesel

**Harvesting Clean Energy V, Great
Falls Montana, Jan 20-21, 2005**

www.harvestcleanenergy.org/conference



Biodiesel Incentives

Washington: 30 percent of small plants

Idaho: Reduction in fuel tax

Montana: Reduction in fuel tax after an ethanol plant is operating

Potential developers: 10 (2-ID, 3-MT, 2 WA, 3 OR)

FOR MORE INFORMATION

www.deq.state.mt.us/bioenergy

www.uidaho.edu/bae/biodiesel

www.energizemontana.com

www.biodiesel.org

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**THANKS FOR LISTENING,
ANY QUESTIONS?**